

CLAIMS

What is claimed is:

1. A constraint-based speech recognition system for use with a form-filling application employed over a telephone system, the system comprising:

an input signal comprising:

- a) speech input, and
- b) non-speech input of a type generated by a user via a manually operated device;

a constraint module operable to:

- a) access an information database containing information suitable for use with speech recognition, and
- b) generate candidate information based on the non-speech input and the information database, the candidate information corresponding to a portion of the information; and

a speech recognition module operable to recognize speech based on the speech input and the candidate information.

2. The system of claim 1, wherein the manually operated device defines a plurality of classes, and wherein the information database is encoded according to the plurality of classes.

3. The system of claim 1, wherein the information is further defined to be suitable for populating a form data structure accessible to the form-filling application.

4. The system of claim 1, wherein the manually operated device is further defined as a keypad of the type used with a touch-tone telephone, and wherein the non-speech input is further defined as user-generated tones.

5. The system of claim 4, wherein the keypad defines a plurality of classes, and wherein said information database is encoded according to the plurality of classes.

6. The system of claim 5, wherein at least one class associated with the plurality of classes is further defined to be a number-letter combination corresponding to a combination of letters and a number visually represented on the keypad as associated with a key of the keypad.

7. The system of claim 6, wherein the information is further defined to be at least one of:

- a) names, and
- b) addresses, and

wherein the information database is further defined to be at least one of:

- a) encoded according to combinations of letters based on the key classes, the combinations potentially representative of names, and
- b) encoded according to zip codes associated with the addresses.

8. A constraint-based speech recognition method for use with a form-filling application at a telephone, the method comprising:

receiving an input signal, the signal comprising speech input and non-speech input, the non-speech input of a type generated by a user via a manually operated device;

accessing an information database containing information suitable for use with speech recognition;

generating candidate information based on the non-speech input, the candidate information corresponding to a portion of the information; and

recognizing speech based on the speech input and the candidate information.

9. The method of claim 8, wherein the manually operated device defines a plurality of classes, and wherein the information database is encoded according to the plurality of classes.

10. The system of claim 8, wherein the information is further defined to be suitable for populating a form data structure accessible to the form-filling application.

11. The method of claim 8, wherein the manually operated device is further defined as a keypad of a type used with a touch-tone telephone, and wherein the non-speech input is further defined as user-generated tones.

12. The method of claim 11, wherein the keypad defines a plurality of classes, and wherein said information database is encoded according to the plurality of classes.

13. The method of claim 12, wherein at least one class associated with the plurality of classes is further defined to be a number-letter combination corresponding to a combination of letters and a number visually represented on the keypad as associated with a key of the keypad.

14. The method of claim 13, wherein the information is further defined to be at least one of:

- a) names, and
- b) addresses, and

wherein the information database is further defined to be at least one of:

- a) encoded according to combinations of letters based on the key classes, the combinations potentially representative of names, and
- b) encoded according to zip codes associated with the addresses.

15. An information database residing in memory operable with a data processing system, said information database containing information suitable for use with a speech recognition system running on said data processing system, said information database encoded according to classes defined by a manually operated device.

16. The information database of claim 15, wherein the manually operated device is further defined as a keypad of the type used with a touch-tone telephone, and wherein at least one class associated with the plurality of classes is further defined to be a number-letter combination corresponding to a combination of letters and a number visually represented on the keypad as associated with a key of the keypad.

17. A method of constraint for use with a speech recognition system, the method comprising:

receiving an input signal, the signal comprising non-speech input of the type generated by a user via a keypad of the type used with a touch-tone telephone;

accessing an information database containing searchable information; and

generating candidate information based on the non-speech input, the candidate information corresponding to a portion of the searchable information.